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PHYSICAL EXAMINATION OF WORKERS

BY

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PHYSICAL EXAMINATION OF WORKERS.[1]

By J. W. SCHERESCHEWSKY, Surgeon, United States Public Health Service.

The spirit of individualism is rapidly passing out of modern society, to be replaced by an increasing solicitude for methods which aim at greater cooperation between various social units, the better conservation of human life and health, and an increasing recognition of the importance of the individual to society at large.

We are gradually coming to a realization of the fact that continued industrial prosperity is not dependent, in the last analysis, upon the tons of raw material consumed nor the money value of the finished product, but upon the physical efficiency of the worker and the length of the period of his economic productivity.

There can be no question that the value of the individual to society is conditioned more by the length of this period than any other factor. The stage of growth and development from infancy to manhood is at a heavy, though rightful, cost to society, a cost which is becoming larger from year to year, because of the increased pains taken and skill exercised to insure the greater efficiency of the finished human product and the longer time devoted to this end. During his years of economic productivity the individual repays this debt to society.

It is evident that the returns from these human investments are variable. Some return manifold the cost, others increase greatly this debt. The most important factor determining the economic return the social unit shall make consists in the condition of his health. The maintenance of a continuous state of physical efficiency is the best guarantee that each social unit shall easily and abundantly discharge his debt to society.

Few of us have any accurate realization of the enormous losses caused each year in all industries by the ill health of workers, for the most part due to preventable causes. In a recent address by Dr. L. K. Frankel,[2] of the Metropolitan Life Insurance Co., before the Detroit conference, it appears from the experience of the local sick benefit societies of Leipsic and vicinity in Germany, that the

[1] Read before the Session on Industrial Hygiene, Third Annual Congress of the National Council for Industrial Safety, Chicago, Ill., Oct. 12-15, 1914. Reprint from the Public Health Reports, vol. 29 No. 47, Nov. 20, 1914.

[2] Dr. L. K. Frankel: Occupational Hygiene, Appendix A, Detroit conference, Niagara Falls, Sept. 4, 1914.

annual loss from sickness per 100 male workers in 83 occupations was 910 days, varying from 395 days in barbers and personal attendants to 1,574 days in cardboard and paper-box factory workers. In female workers the loss was still higher, varying from 560 days in bookkeepers and office employees to 1,978 days in workers in skins, hides, and other animal refuse, the average being 1,138 days.

In 1910 the First National Conference on Industrial Diseases[1] addressed a memorial to the President of the United States, in which it was stated that there occurred annually in the United States 13,400,000 cases of illness among workers, involving an economic yearly loss of nearly three-fourths of a billion dollars.

As a large part of this huge loss is preventable, it is clear that society is not fostering foolish fads nor indulging in vague humanitarianism by displaying active interest in the physical condition of its units. It is only natural, therefore, that the question of the physical examination of workers (or medical supervision, as I prefer to term it) should have attracted increasing attention in recent years.

It is my intention to discuss briefly the purpose of such medical supervision, its value, and the results we may expect in the future from the practical application of the useful data it can be made to provide.

We are, of course, well aware of the specific reasons for the introduction of the physical examination of workers in this country. The enactment of legislation for the compensation of workmen for injuries has rendered such examination advisable for the purpose of determining the physical condition of workmen upon entering employment, so that unjust claims for accidental injuries might be avoided, and the hazard to fellow employees, arising from physical defects in workers, reduced.

Begun on this basis, we are rapidly coming to the realization of the great value of such medical supervision in a larger sense. The beneficent results of the widespread campaign for safety have focused the attention of the industrial world in a way, possible in no other manner, to the very great importance of health in the abstract. We are beginning fully to recognize the fact that the very principle which renders it expedient to safeguard health and limb, renders it equally expedient, by extension, to safeguard the health of the worker from all standpoints.

In accordance with this principle, large industrial plants everywhere are beginning voluntarily to study industrial sanitation and to extend measures, originally intended solely to reduce accidents, so that they also serve to diminish the incidence of disease. They are realizing

[1] Dr. W. Gilman Thompson: The Occupational Diseases of Modern Life. Read before the annual meeting of the Cumberland County Medical Society, Portland, Me., Dec. 8, 1911, p. 2.

that, as it is their duty to minimize the effects of ignorance and carelessness in producing accidents, so, in similar fashion, the operation of these causes in the production of sickness should be reduced, as a person who is ill through carelessness or lack of knowledge is just as much a dependent upon society as one in the same condition from injury.

Let us now proceed to a discussion of the aims of such medical supervision. The goal to which we are evidently tending is to render all industries "safe." While certain hazards inherent in industries must necessarily be encountered, our object is to minimize their detrimental influence. In other words, we are subscribing to the principle that, *per se*, an industry ought not to exercise an unhealthful influence upon the worker; that occupation in that industry ought not to curtail the average period of economic productivity.

Suppose that all precautions have been taken to prevent the operation of injurious factors in a given industry; suppose that due care has been given to the sanitation of workrooms; suppose that the occurrence of accidents has been reduced to a minimum by proper rules, the safeguarding of machinery, and the education of the workers, have we done all we can or ought to do in the way of guarding the industry from economic loss through disabilities? The answer is, "No." We will achieve results far in advance of anything accomplished by the methods above described if, in addition to this, a system of medical supervision with periodic physical examinations of all employees be introduced. There can be no question that such examinations constitute the most efficient means at our command for maintaining the individual in a continuous state of physical efficiency.

As a general proposition such medical supervision should have for its objects the following points:

1. The prevention of the introduction, and the control, of communicable diseases among workers.
2. The detection of physical defects and diseases in their incipiency among workers.
3. The adaptation of the work to the physical condition of the worker.
4. Advice to the worker as to his own physical condition.
5. A careful record of the actual physical condition of workers.
6. The education of workers.
7. The prevention of occupational diseases.

We will now take up each one of these points for discussion.

1. *The control of communicable diseases.*—It would seem a matter of simple justice that the worker should be protected from exposure to infection from coworkers suffering from communicable diseases.

As an example of this, the Public Health Service was recently called upon to investigate, in a large steel plant, an outbreak of trachoma,

which, as you know, is a contagious disease of the eyes, frequently resulting in great impairment or loss of vision. The situation was found to be so acute that the company took immediate steps at large expense to eradicate the disorder, in view of the imminent spread of the disease throughout the factory personnel. A system of medical supervision, which, I am given to understand, this company has now adopted, would, in the first instance, have prevented this outbreak.

2. *The detection of incipient defects and diseases.*—Many individuals have their efficiency much impaired because they are suffering from some easily correctible defect the existence of which was unsuspected by them. Others are suffering from diseases, such as pulmonary tuberculosis, in an incipient condition which, if neglected, would make such advances as to preclude subsequent recovery. Medical supervision creates an opportunity for detecting such defects and diseases before the damage wrought is irreparable and of advising the worker of the steps which should be taken for their improvement or correction.

3. *Adaptation of the work to the physical condition of the worker.*—It is evident that some classes of work require certain physical qualifications or the absence of certain physical defects or diseases. It is obvious that persons suffering from hernia should not work at occupations which require the lifting of heavy objects, persons suffering from nephritis should not engage in occupations involving great fluctuations in temperature or exposure to cold and dampness, nor should persons suffering from cardiac disease be placed in situations where physical exertion is required, or where a sudden vertigo may endanger the individual or his coworkers. Medical supervision gives the needed opportunity of adjusting the duties of the individual to his physical capacities, so that the productiveness of the individual remains at a maximum compatible with his physical condition, without his being endangered or causing injury to others by reason of his infirmities.

4. *Advice to the worker.*—The great opportunity which medical supervision affords to advise workers concerning their physical condition is an advantage which can not be overestimated. The helpful interest thus displayed on the part of the employer toward the physical condition of workers awakens that spirit of cooperation on their part which is necessary to the maintenance of "safe" industrial conditions. Such, at least, has been the experience of plants in which medical supervision has been put in operation. In addition to this, workers should be encouraged to visit the plant hospital whenever they feel sick, so that, on the one hand, if the symptoms are serious, the worker can be advised to stop work before further injury has occurred, or, on the other, if the ailment be trivial, a minimum of time will be lost from work.

5. *Record of the physical condition.*—For proper medical supervision it is essential that careful records of the physical condition of workers be kept. In the first place a record of the physical examination serves, on the one hand, to safeguard against unjust claims for compensation in the case of injuries, while, on the other, a record of physical fitness will help to substantiate just claims for such injuries. In the second, such records constitute most valuable data for studying the average physique and the condition of the health of workers in any industry.

6. *Education of the workers.*—We are familiar with the excellent work already accomplished in the prevention of accidents by means of the education of workers. A similar campaign in teaching them how to keep well should have like effects in reducing the number of cases of illness.

7. *The prevention of occupational diseases.*—Systematic medical supervision is a most excellent agent to prevent the occurrence of occupational diseases among workers. When such diseases are found in a plant the first cases will be detected by the medical supervision, so that the sanitary defects responsible for them may be readily corrected. The supervision would serve also as a constant check upon the efficiency of the methods introduced to prevent the occurrence of occupational diseases.

Type of Physical Examination Contemplated.

Whatever is worth doing is worth doing well. The importance of making physical examinations thorough can not be overemphasized. A reliable record of the physical condition can not be obtained by a hasty and superficial examination; the data so collected are of no especial value, nor can incipient disease be detected by such methods. What is especially needed is a standard form of physical examination, so that the data obtained in this manner for various industries may be comparable.

Workers found suffering from physical defects and diseases should be held under observation and requested to report back for reexamination, so that advice as to their condition may be given, as well as a watch kept upon their progress to recovery. It is also earnestly recommended that periodic reexaminations be made of all workers, as this is the best way of insuring a continuous state of health on their part.

It is evident from the foregoing that the scheme of medical supervision contemplated in this paper is extensive and would entail considerable expense to put in operation. The question which inevitably arises is: "Will it pay?" The answer must be unhesitatingly in the affirmative. The experience of all plants in which such systems have been put in operation is so satisfactory that no doubt has arisen in the

minds of their officers that medical supervision does pay in increased efficiency of the working force, greater content of the workers, greater cooperation between employers and employed, and in greatly diminished loss of time and suffering from preventable disease.

There is another aspect of this question of medical supervision upon which I have not as yet dwelt. We are in need of more exact information in order to render our industries "safe" from a health standpoint. While it is manifestly wasteful to introduce superfluous precautions in industries, it is equally a part of social justice to see that such precautions be adequate. The physical examination of workers gives us information, which can be so well obtained in no other way, as to the diseases and defects peculiar to workers and the specific influence of occupations upon the health of the individual.

Let me illustrate this point: At present the Federal Public Health Service is entering upon a study of diseases of occupation. The first and most important question in the consideration of this subject is, naturally, What is the effect of different occupations upon the health of workers? The service is just concluding an investigation, undertaken at the solicitation of the Joint Board of Sanitary Control of the Garment Trades, in New York, as to the influence of this industry upon the health of its workers. The most important line of study which the service pursued in this investigation consisted of careful physical examination of several thousand garment workers. As a result of these physical examinations the Public Health Service is now in possession of rather precise data, obtainable so well in no other way, as to the effects of this occupation upon the health of the individual, the average physical condition of garment workers, the types of diseases, and disabilities from which the workers suffer. The service is, therefore, in a position to formulate useful recommendations for the sanitary improvement of this industry. These studies the service hopes to extend to other industries as facilities permit.

We see from the foregoing the great value of physical examinations of workers in obtaining accurate data as to the effects of industries upon health. The general introduction of systems of medical supervision, with periodic physical examinations in various industries, will result in the collection of a body of similar data, which, when studied, will form a logical basis for practical recommendations to make all such industries safe from a health standpoint. In other words, the medical supervision of workers, if generally introduced, will point clearly the way to enable each industry to sanitate itself. When we have reached this point it will be found that the enormous economic loss caused in industries by preventable diseases and disabilities will have largely disappeared.

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